

# Keystart 9620 Series Engine/Generator Controls

Keystart 9620 and 9621 control modules provide manual start/stop and automatic fault protection for generators, pumps and other engine-driven applications. Outputs allow control of engine fuel (energized to run), starter motor and preheat. The Keystart also has an alarm output for remote or audible warning of faults.

Six LEDs and icons indicate engine status and faults. Four switch inputs (closing to negative on fault) enable automatic shutdown on engine low oil pressure, high coolant temperature and auxiliary faults. Model 9621 has a fully adjustable engine overspeed shutdown feature, configurable for either generator AC or magnetic pickup speed signals. Charge alternator excitation and a charge fail warning LED are standard.

Electrical connection is by quick-connect, spring-clamp terminal blocks. A universal 7 to 30 VDC power supply permits operation with 12 or 24 VDC engine batteries, with standard engine crank-dip voltage protection.

Keystarts are mounted in the front through a standard cutout and secured at the rear with quick-fit clips. Epoxy resin case encapsulation gives superior vibration/shock resistance and environmental protection.

## Specifications

### Power Supply

**Operating voltage, steady state:** 7 to 30 VDC

**Operating voltage, brown out/cranking:** 5 VDC minimum

**Current consumption:** <100 mA

### Inputs

**Fault switch inputs:** close to negative DC during fault

**Generator AC input (model 9621 only):**

70 - 270 VAC rms, <50 to >60 Hz nominal

**Magnetic pickup input (model 9621 only):**

3.5 - 21 VAC rms, <2000 to >6500 Hz nominal

**Outputs (all ratings non-reactive)**

**Run (fuel):** positive DC, NO relay contacts, 10 A max @ 24 VDC

**Start (crank):** positive DC, keyswitch contacts, 10 A max @ 24 VDC

**Alarm:** negative DC (open collector transistor), 300 mA max

**Speed calibration:** to suit 0-1 mA, 75 Ohm meter, output=0.75 mA at rated engine speed.

### Adjustable settings

**Preheat timer:** 0 or 10 secs, default = 0 secs

**Fault override timer:** 2 to 20 secs (VR1), default = 10 secs

**Overspeed trip level (model 9621 only):** 100 to 130% (VR3) of nominal calibrated speed, default = 110% (of 50 or 60 Hz)

### Physical

**Case material:** polycarbonate / polyester

**Overall dimensions:** (w x h x d): 3.8 x 3.8 x 3.7 in.  
(96 x 96 x 95 mm)

**Panel cut-out size:** DIN 3.6 x 3.6 in. (92 x 92 mm)

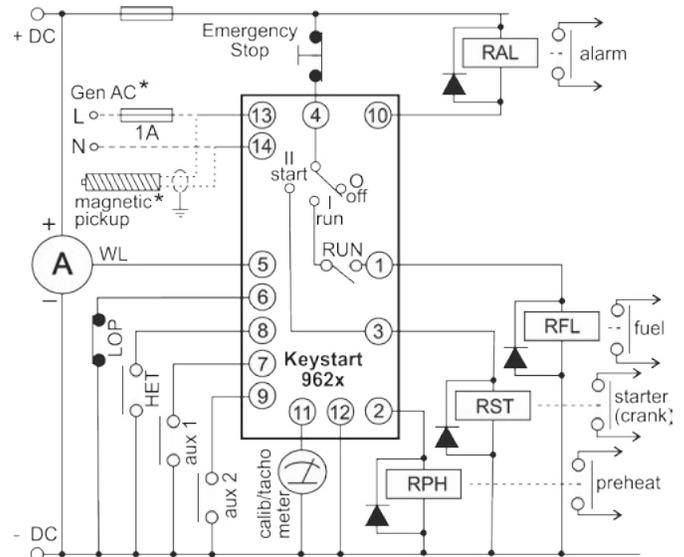
**Weight:** approx 0.7 lb. / 300g

**Operating temperature:** -31° to 131° F / -35° to 55° C

**Electromagnetic compatibility:** EN55022, class B



## Typical Connections

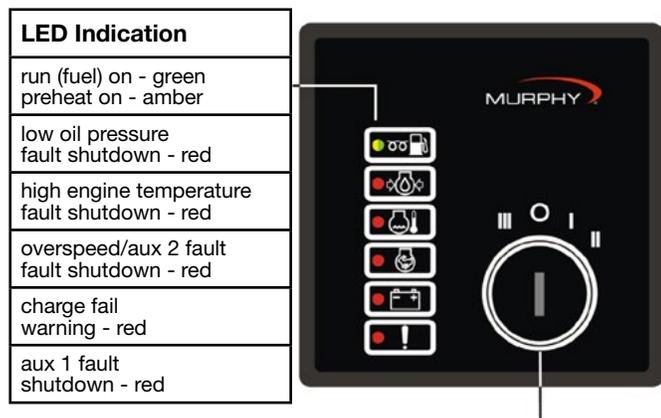


Notes:

\* Overspeed models 9621 only. Select generator AC or magnetic pickup speed sensing using configuration links (see rear view diagram). Factory default setting is for generator AC sensing.

# Operation, Connections and Settings

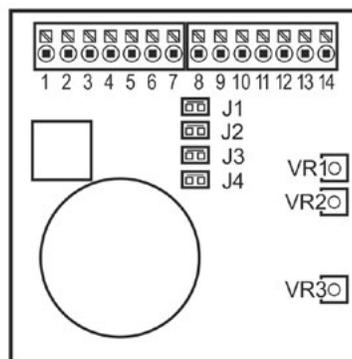
## Front View and Operation



### 4 Position Keyswitch

O	Off/Reset. Removes power, stops the engine and resets any latched shut-down fault. Key is only removable in this position.
I	Run. Activates the run output and (if enabled) the timed preheat output. Once the engine is fully running, and after the override time, keystart immediately shuts down the engine on detection of a fault.
II	Start/crank. Maintains the run output, and activates the start (crank) output. Shut-down fault inputs are disabled and the fault override timer is reset. This position spring returns to I (run) on release.
III	Auxiliary. Keyswitch auxiliary output, positive DC

## Rear View, Connection & Settings



This applies to models manufactured from April 2015.  
Please refer to installation instructions for earlier models.

### Connection:

1 run (fuel) output: +DC, 10A	11 speed calibration output
2 preheat output: +DC, 10A	12 - DC power supply
3 start (crank) output: +DC, 10A	Speed input, model 9621 only.
4 + DC power supply	Check rear configuration links
5 charge fail (WL)	before connection, either:
6 oil pressure fault input	13 L Generator AC,
7 aux. 1 fault input	14 N 70-270 VAC, 50/60Hz
8 engine temp fault input	or
9 aux. 2 fault input	13 + magnetic pickup,
10 alarm output: -DC, 250mA	14 - 3.5-21 VAC, 2000-6500Hz

### Configuration

Use a 3 mm/0.1 in. flat head screwdriver for potentiometers VR1-VR3

#### Models 9620 and 9621

J3 & J4: preheat output timing  
 - J4 ON: no preheat  
 - J4 OFF, J3 OFF: preheat 10 secs fixed, unaffected by cranking  
 - J4 OFF, J3 ON: preheat 10 second max, de-activated by cranking  
 VR1: Fault override, 2-20 secs, clockwise to increase.

#### Model 9621 only

J1 & J2: speed sensing source (pins 13 and 14):  
 - both links ON for generator AC, 50/60Hz  
 - both links OFF for magnetic pickup, 2000 - 6500Hz  
 VR2: Speed calibration. Set J1 and J2 correctly, run engine to nominal speed, adjust VR2 to give (pin 11) calibration output of 0.75mA  
 VR3: Overspeed, 100 - 130% of VR2 setting, clockwise to increase

## How to Order

Part Number	Model / Description	Notes
41700141	KEY9620 (without overspeed protection)	Only available from our UK office. Keyswitch Type K2, rubberized
41700143	KEY 9621 calibrated for 50Hz, (with overspeed protection, selectable AC generator or magnetic pickup sensing)*	Only available from our UK office
41700142	KEY 9621 calibrated for 60Hz, (with overspeed protection, selectable AC generator or magnetic pickup sensing)*	Keyswitch Type K2, rubberized
41700157	Spare mounting clips (pack of 4)	Accessories / Spares
65700148	Spare keyswitch (K2 type), includes key	
65000460	Spare key (K2 type)	
00020657	Keystart 9620/9621 Installation Instructions	Further information

\*Factory default setting is for AC generator sensing, 50 or 60 Hz nominal. Non-standard (NS) setting options are available to order.